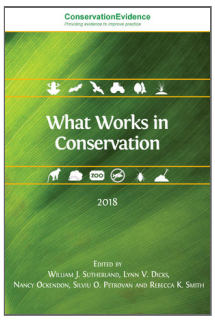

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What Works in Conservation 2018

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2.2 Threat: Agriculture

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2.2 Threat: Agriculture

2.2.1 Land use change

Based on the collated evidence, what is the current assessment of the effectiveness of interventions for land use change?	
Likely to be beneficial	• Protect or create wetlands as foraging habitat for bats
Unknown effectiveness (limited evidence)	• Retain or plant trees on agricultural land to replace foraging habitat for bats
No evidence found (no assessment)	• Conserve old buildings or structures on agricultural land as roosting sites for bats • Retain old or dead trees with hollows and cracks as roosting sites for bats on agricultural land • Retain or replace existing bat commuting routes on agricultural land

Likely to be beneficial

Protect or create wetlands as foraging habitat for bats

We found no evidence for the effects of protecting existing wetlands. One replicated, controlled, site comparison study in the USA found higher bat activity over heliponds and drainage ditches within a pine plantation than over natural wetlands. A replicated study in Germany found high levels of bat activity over constructed retention ponds compared to nearby vineyard

sites, but comparisons were not made with natural pond sites. *Assessment: likely to be beneficial (effectiveness 60%; certainty 48%; harms 0%).*

http://www.conservationevidence.com/actions/959

Unknown effectiveness (limited evidence)

Retain or plant trees on agricultural land to replace foraging habitat for bats

We found no evidence for the effects of retaining trees as foraging habitat for bats. Two site comparison studies (one replicated) in Australia found no difference in bat activity and the number of bat species in agricultural areas revegetated with native plantings and over grazing land without trees. In both studies, bat activity was lower in plantings than in original forest and woodland remnants. *Assessment: unknown effectiveness (effectiveness 20%; certainty 20%; harms 0%).*

http://www.conservationevidence.com/actions/958

No evidence found (no assessment)

We have captured no evidence for the following interventions:

- Conserve old buildings or structures on agricultural land as roosting sites for bats
- Retain old or dead trees with hollows and cracks as roosting sites for bats on agricultural land
- Retain or replace existing bat commuting routes on agricultural land

2.2.2 Intensive farming

Based on the collated evidence, what is the current assessment of the effectiveness of interventions for intensive farming?	
Likely to be beneficial	• Convert to organic farming • Encourage agroforestry
Unknown effectiveness (limited evidence)	• Introduce agri-environment schemes

Likely to be beneficial

Convert to organic farming

Four replicated, paired, site comparison studies on farms in the UK had inconsistent results. Two studies found higher bat abundance and activity on organic farms than conventional farms, and two studies showed no difference in bat abundance between organic and non-organic farms. *Assessment: likely to be beneficial (effectiveness 40%; certainty 40%; harms 0%).*

http://www.conservationevidence.com/actions/961

Encourage agroforestry

Four replicated, site comparison studies (three in Mexico and one in Costa Rica) found no difference in bat diversity, the number of bat species and/or bat abundance between cacao, coffee or banana agroforestry plantations and native rainforest. One replicated, site comparison study in Mexico found higher bat diversity in native forest fragments than in coffee agroforestry plantations. One replicated, randomized, site comparison study in Costa Rica found lower bat diversity in native rainforest than in cacao agroforestry plantations. A replicated, site comparison study in Mexico found that bat diversity in coffee agroforestry plantations and native rainforest was affected by the proportion of each habitat type within the landscape. Three studies found that increasing management intensity on agroforestry plantations had a negative effect on some bat species, and a positive effect on others. *Assessment: likely to be beneficial (effectiveness 50%; certainty 50%; harms 10%).*

http://www.conservationevidence.com/actions/963

Unknown effectiveness (limited evidence)

Introduce agri-environment schemes

One replicated, paired study in Scotland, UK found lower bat activity on farms participating in agri-environment schemes than on non-participating conventional farms. *Assessment: unknown effectiveness (effectiveness 0%; certainty 18%; harms 13%).*

http://www.conservationevidence.com/actions/962